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22. A heat exchange panel to be conformed to a complex shape, comprising:

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- a first layer which is conformable to a complex shape;
- a second layer which is conformable to a complex shape;
- a border seal sealing the first layer and the second layer to form a border, the border seal including smooth ripples having ripple lengths substantially shorter than the length of said border.

23. The heat exchange panel of claim 22 further including at least one fence interiorly of said border sealed to the first layer and the second layer, said fence including smooth ripples having ripple lengths substantially shorter than the length of the fence.

24. The heat exchange panel of claim 23 further including a first port for passing fluid into the panels and a second port for passing said fluid out of the panel, said first and second ports being contiguous.

Remarks

Changes are made to the specifications by this amendment to correct obvious errors and to introduce language now used in the claims. No new matter has been added. Three of the claims are canceled and six are rewritten. Moreover, five claims are added, one of which is independent. In this connection, enclosed is counsel's check for \$75.00 to cover the additional filing fee for one more independent claim and four more claims than had been originally paid for.

Enclosed are copies of the drawing showing what is believed to be appropriate labels. Upon the approval of the examiner and the finding of allowable subject matter, the drawing changes will be made.

Claims 1-19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over applicant's prior art figure 2 in view of the Haugeneder patent, U.S. Patent No. 5,080,166. It is stated that since Fig. 2 and Haugeneder are "both from the same field of endeavor, the purpose as disclosed by Haugeneder would have been recognized in the pertinent part of Applicant's Prior Art Fig. 2." Applicant respectfully disagrees. The Haugeneder patent discloses a plate shaped heating element which is designed for heating floors. While it includes spacing elements which extend between a pair of plates, the purpose of the same in Haugeneder is quite different than the purpose in applicant's arrangement. The Haugeneder arrangement is of the type having supporting elements between the upper and lower plate in order to be capable of withstanding the force acting on the heating element when used for floor heating (Haugeneder, col. 1, lines 15-18). In contrast, in applicant's arrangement, the purpose for including the dot matrix is to make the unit thin and avoid warm spots, while yet maximizing thermal contact with complex shapes as are found in the human body. (Page 3, line 25, et seq. of applicant's specification.) (In this connection, it must be remembered that a complex shape may simply be a straight human limb of a human body which has little or no common diameter along its length, and the capability being designed into the unit is to provide both the conformability and thermal contact that is necessary for such purpose.) The very different purposes of Haugeneder and applicant's arrangement is emphasized by the appearance of the matrix in the two constructions. In Haugeneder, it appears that the area of the connection of the supporting posts to the plates is dominant, whereas in applicant's arrangement in which it is desired to provide good thermal contact one of the major focuses is to minimize the area taken up by the dot matrix to provide more thermal contact. It is respectfully submitted that the different purposes of using spacing elements

as supporting elements in a floor heater and to provide a matrix of connections to make units thin and yet assure good thermal contact with complex shapes, would not lead one skilled in the art to believe that incorporation of the Haugeneder supporting elements in applicant's Fig. 2 arrangement will result in the desired thinness and thermal contact.

All of the independent claims in the application, claims 1, 6, 10, 15, and 21 have been amended not only to recite in the preamble that the invention is directed to a heat exchange panel "to be conformed to a complex shape" but also in the body to bring out that the first and second layers both are conformable to such a complex shape. These limitations clearly distinguish applicant's claimed arrangement from any relatively rigid heating panel such as disclosed in the Haugeneder reference.

The dependent claims recite additional features and/or limitations which it is believed result in such claims themselves reciting patentable subject matter irrespective of the recitals in the claims from which they depend. For example, claims 3, 8, 12, and 17 bring out that the border seal between the two panels is one having smooth ripples with ripple lengths substantially shorter than the length of the border. This reduces potential flow stagnation by increasing laminar flow at the border. (See applicant's specification, page 5, line 13, and page 4, line 12 et seq.) Claims 5, 9, 14, and 19 add that a fence provided within the panel to direct fluid flow within the panel also has such smooth ripples. This smooth ripple feature is so important to applicant's arrangement that claims 22-24 are added by this amendment to claim the same independently of the dot matrix arrangement.


To further distinguish the invention from a relatively rigid type of heat panel as disclosed by Haugeneder, claim 21 is added to bring out that it is the layers themselves which are sealed together in the dot matrix, rather than a supporting post arrangement as described by Haugeneder. Moreover, claims 20 and 24 bring out that the inlet and outlet ports are contiguous as shown in the drawings. It will be appreciated that in a panel like the Haugeneder panel, it is immaterial from a functional standpoint if the inlet/outlet ports are near one another and, in fact, Haugeneder's main purpose is to assure there is mixing between his inlet and outlet ports in spite of the fact they are in-line, whereas in applicant's arrangement designed to conform to relatively complex shapes, such as are provided by the human body, it is important for versatility that the inlet and outlet ports not be opposite one another.

The disclosures in the prior art which was cited but not applied to the claims has been taken into consideration during preparation of this amendment. It is believed clear that such references neither disclose nor make obvious applicant's claimed arrangement.

A conscientious effort is made by this paper to adequately define the instant invention and point out how it differs from the prior art. The examiner is urged to telephone the undersigned counsel if he believes doing so might result

in a better understanding or advance the prosecution of this application. In any event, the examiner is asked to telephone the undersigned counsel to inform him of the disposition of this case in view of the amendment.

Respectfully submitted,


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